Community Announcement

Anticipated Major Changes between the Draft and Final Discovery 2014 Announcements of Opportunity

General Information:

Solicitation Number:	NNH14ZDA004J
Posted Date:	October 6, 2014
Release of AO:	Mid-October 2014 (target)
Proposal Due Date:	90 days after release of AO
Recovery and Reinvestment Act Action:	No
Classification Code:	A – Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)
Issued by:	Science Mission Directorate, NASA
NAICS Code	541712
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On July 2, 2014, NASA's Science Mission Directorate (SMD) released a Draft Announcement of Opportunity (AO) for Discovery Program missions. A large number of questions and comments were received from the scientific community. SMD is now issuing information on anticipated major changes between the Draft and Final AOs based, in part, on these comments. Proposers should read the Final Discovery 2014 AO carefully when it is released.

Inclusion of a Classified Heritage Appendix:

In order to increase the capabilities of investigations proposed in response to the Discovery 2014 AO, while potentially minimizing the development and operations risks within the Principal Investigator (PI)-Managed Mission Cost, proposals will be able to include a Classified Proposal Appendix Regarding Heritage as in some recent SMD AOs.

Use of the Advanced Multi-Mission Operations System:

The language of Section 5.2.10, *Mission Operations Tools and Services*, will be modified in the Final AO to clarify that the use of the Advanced Multi-Mission Operations System (AMMOS) tools is not *required*. Proposers may elect to use mission or ground operations tools not part of the AMMOS. However, if a ground/operations system solution other than the AMMOS is proposed, a justification must be provided for this choice. It is expected that any mission operations tools or services to be developed by proposed investigations, as well as their sustaining engineering, will be described and budgeted in proposals.

Engineering Science Investigation on Entry, Descent, and Landing:

Section 5.8.1 and Requirement 24 of the Draft AO require investigations involving entry, descent, and landing (EDL) into the atmosphere of a Solar System object (including the Earth) to include an Engineering Science Investigation (ESI) to obtain diagnostic and technical data about vehicle performance and entry environments. It is anticipated that while the Final AO will contain similar language, and a description of the proposed implementation must still be contained in proposals, an estimated cost for the ESI will *not* be required. Details of the ESI will be negotiated with selected investigations during Phase A.

Clarification of the Exclusion of "Mission Operations" from the PI-Managed Cost Cap:

Planetary missions have a wide range of cruise-phase durations. In order to level the playing field between missions with different length cruises, the Draft AO specified (in Section 5.6.1) that "the mission operations portion of Phase E" would not be under the AO Cost Cap. It is anticipated that in the Final AO the excluded costs will be expanded to be all costs of Phases E and F, *excluding* the development of ground or flight system software and the development, fabrication, or refurbishment of test-beds. Software development and test-bed development, fabrication, or refurbishment will be considered deferred Phase D work and will be included under the AO Cost Cap.

Clarification of Rules Regarding Allocation of Returned Samples to Non-U.S. Partners:

NASA has long had a policy that in return for investment by non-U.S. partners in a mission that returns extraterrestrial materials, a proportionate fraction of the total returned sample may be forwarded to the national curatorial facility of the contributing country. The amount of samples so transferred is limited to 25% of the total returned. Any material allocated to non-U.S. partners during the preliminary examination period must be included in this 25% limitation. It is anticipated that the Final AO will specify that the amount of material contributed by the non-U.S. partner to the preliminary examination must also be in proportion to the size of the contribution from that partner to the Total Mission Cost minus any Student Collaboration incentive. Thus, a non-U.S. partner who contributes 15% to a sample return mission would be entitled to 15% of the returned sample. From that allocation, the non-U.S. partner would have to contribute 15% of the material used in the preliminary examination.

Clarification of the Evaluation of the Risk of NASA-Developed Technologies:

In Table 4 of the Draft AO, the "Evaluation of Risk" column for the Advanced Solar Arrays and the "green" propellant stated that these technologies "will be treated as commercial procurements from proven vendor(s)." It is anticipated that in the Final AO this text will be modified to clarify NASA's intent. Potential text is:

> Will be treated as a commercial procurement of a mature product from a proven vendor(s) in the same manner as any spacecraft component (where the mission

specific accommodation will be evaluated, but the basic design and performance, *i.e.,* technology readiness level, of the component itself is not evaluated nor considered a risk).

Clarification of the Conjunction Assessment Risk Analysis Requirement:

Section 4.5.4 of the Draft AO stated that NPR 8715.6A, Section 3.4 would require Discovery missions to have conjunction assessment risk analyses performed. The requirement in NPR 8715.6A only applies to missions in certain orbits around the Earth, its Moon, and Mars. A CARA team at the NASA Goddard Space Flight Center is funded directly by NASA Headquarters to perform the actual analysis and risk assessment; the costs for these services need *not* be included in the proposed PI-Managed Mission Cost. Investigations to which NPR 8715.6A Section 3.4 is applicable *will*, though, have to spend project funds to establish a working interface between the Flight Operations Team and the CARA team to routinely share orbital ephemeris data and maneuver plans, and to perform any maneuver planning activities required for collision avoidance once on orbit. Estimates of how many maneuver-planning events may be required in a particular orbit regime are available from the CARA team.

For additional information, proposers may contact the Ms. Lauri Newman (Telephone: (301) 286-3155; E-mail: lauri.k.newman@nasa.gov).

For information regarding CARA for the Moon and Mars, please contact Mr. Roby Wilson (Telephone: (818) 393-5301; E-mail: roby.s.wilson@jpl.nasa.gov).

Clarification of the Requirement for Independent Verification and Validation (IV&V) of Flight Software:

The language in Section 4.5.1, "Independent Verification and Validation of Software," (IV&V) of the Draft AO was not clear on how an investigation should determine if independent verification and validation of software would be required. Per NPR 7150.2A, all Category 1 and Category 2 missions with a Payload Classification A or B require IV&V. Since past Discovery missions have been determined to be Category 2 missions (per NPR 7120.5E) with Class B or Class C payloads (per NPR 8705.4) it should be expected that proposed missions will be required to support independent verification and validation of software. The text of the Final AO will reflect this. The costs for IV&V will be outside of the cost cap.

Addition of a Requirement to Provide an Electronic Version of the Project Schedule:

To improve the ability of NASA to evaluate proposed schedules in the absence of detailed discussions with proposers, it is anticipate that a requirement to provide electronic versions of the schedules, in Microsoft Project format, will be added to the Final AO. This should not be construed to limit proposers' own discretion in the methods chosen to develop project schedules, although electronic versions of schedules

will be required to minimally address the same items as those specified for project schedule foldouts described in AO Appendix B.

NASA has not approved the issuance of the Final Discovery AO and this notification does not obligate NASA to issue the AO and solicit proposals. Any costs incurred by prospective investigators in preparing submissions in response to this notification or the planned Draft Discovery AO are incurred completely at the submitter's own risk.

Further information will be posted on the Discovery Program Acquisition Page at http://discovery.larc.nasa.gov/ as it becomes available. Questions may be addressed to Dr. Michael New, Discovery Program Lead Scientist, Science Mission Directorate, NASA, Washington, DC 20546; Tel.: (202) 358-1766; Fax: (202) 358-3097; E-mail: michael.h.new@nasa.gov.